



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

SYNOPSIS OF EUCERIDÆ, EMPHORIDÆ AND ANTHOPHORIDÆ.

BY CHARLES ROBERTSON.

This is the eighth number of a series of papers on the bees of the neighborhood of Carlinville, Illinois. The terms and signs used here are explained in Can. Ent. 36: 38-39.

EUCERIDÆ.

Females.

- Anterior inferior orbits with a small subtriangular malar space; clypeus nearly contiguous with eye.....4.
- Anterior inferior orbits with a large subtriangular malar space; clypeus rather widely separated from eye; scopa rather slender.....1.
1. Scopa simple, rather dense; mp. 6; lp. 18-31: 7-11; pubescence of thorax ochraceous.....**Synalonia**.*
- Scopa rather thin, with long, sparse, thinly plumose bristles; mp. 5; pubescence of thorax fulvous.....2.
2. Claws with a short inner tooth, that of hind claw about one-fourth as long as the outer one; clypeus trilobed; mandibles with a distinct exterior angle; mp. 2 nearly as long as 3-5, 3 nearly as long as 4-5; scopa nearly black; abdomen nearly black, with appressed glittering hairs; cell III hardly longer than III₅, shorter than III₄; lp. 21: 8; 14-16 mm.; *ipomoeæ* in.....**Cemolobus**.
- Claws cleft, inner tooth of hind claw more than one-half as long as the outer one; clypeus entire; scopa ochraceous.....3.
3. Mandibles with a basal internal tooth; mp. 2-5 regularly diminishing in length; abdomen with more or less interrupted fasciæ of appressed, ochraceous pubescence; cell III much longer than III₅, a little shorter than III₄; lp. 22: 14; 15-16 mm.; *strenua* in.....**Xenoglossa**.
- Mandibles at apex bidentate; mp. 2 and 3 subequal; segments 2-4 with whitish pubescent fasciæ; cell III twice as long as III₅, about as long as III₄; lp. 17: 12; 12-14 mm.; *pruinosa* in.....**Peponapis**.
4. Scopa rather slender, whitish, sparsely plumose basally; mp. 5, 1 as long as 2-3; pubescence of thorax mixed with black; abdomen somewhat metallic, segments 2-4 with fasciæ of appressed white pubescence, broad laterally, narrow and basal medially, 5 with a white patch on each extreme side; cell III = III₄; lp. 15: 6; 12-14 mm.; *condignus* in.....**Florilegus**.
- Scopa large; mp. 4; lp. 1 about twice as long as 2.....5.
5. Scopa simple; pubescence of thorax fulvo-ochraceous; segments 2-4 with narrow median white pubescent fasciæ; lp. 16-8; 16-18 mm.; *compta* in.....**Anthedon**.
- Scopa densely plumose; lp. 9-19: 5-10.....**Melissodes**.

* Emended from *caconym* Synhalonia.

Males.

Anterior inferior orbits with a small malar space; clypeus contiguous with eye, or nearly; at least segment 6 with lateral spines.....4.

Anterior inferior orbits with a large subtriangular malar space; clypeus rather widely separated from eye.....1.

1. Antennæ surpassing thorax, black, joint 3 much shorter than 4; segment 7 without lateral spines; clypeus yellow or white; labrum white; thorax usually pale ochraceous; mp. 6.....**Synalonia.**

Antennæ not surpassing thorax, black above, more or less testaceous beneath; thorax fulvous; mp. 5.....2.

2. Hind claws long, with a very short inner tooth; hind metatarsus arcuate, its upper apical border beveled, produced below; mandibles at apex bidentate, exterior angle spined; clypeus trilobed, with transverse apical whitish band; joint 3 about as long as 4, 5-12 slightly diminishing in length; segments 6-7 dentiform with lateral apical angles; labrum and base of mandibles whitish; 13-17 mm.; *ipomoeæ* in

Cemolobus.

Hind claws cleft; hind metatarsi simple; clypeus entire.....3.

3. Joint 3 = 4-5; base of mandibles yellow, with an internal tooth; clypeus and labrum largely yellow; segments 5-6 with lateral basal spines, stronger on 6; 14-16 mm.; *strenua* in.....**Xenoglossa.**

Joint 3 about one-third as long as 4, 5-12 slightly diminishing in length; mandibles tridentate, base black; clypeus with yellow spot; labrum black; apex of abdomen without spines: 10-12 mm.; *pruinosa* in

Peponapis.

4. Antennæ black, not surpassing thorax, joint 3 = 4, 13 longest, curved and produced to a point; thorax fulvous; segments 2-4 with narrow sub-apical whitish pubescent fasciæ; 5-7 black; 7 without lateral spines; clypeus, labrum and base of mandibles yellow; 14-15 mm.; *compta* in

Anthedon.

Antennæ more or less yellowish or testaceous beneath, usually dark above, joint 3 shorter than 4, joint 4 longest.....5.

5. Abdomen with metallic reflections, with four whitish pubescent fasciæ, basal on segment 2, median on 3, apical or interrupted on 4-5, with a sub-median connection on 4, and sometimes on 5; 5 without, 7 with, lateral spines; clypeus and middle of labrum yellow; mandibles black; mp. 5; 12 mm.; *condignus* in.....**Florilegus.**

Abdomen without metallic reflections; segment 5 usually with lateral spines; mp. usually 4, sometimes 3, rarely 5.....**Melissodes.**

SYNALONIA Patton.*Females.*

Hind spur hooked; pubescent fasciæ white on segments 2-4, more or less fuscous on 5, subbasal on 2, submedian on 3; lp. 31:11; 13-17 mm.

speciosa.

Hind spur simple.....1.

1. Vein IV₃ about one-third before apex of cell III₅; abdomen black; 14-16 mm.....3.

Vein IV₃ about one-fourth before apex of cell III₅; 12-14 mm.....2.

2. Scopa fulvous; abdomen with white pubescent fasciæ on segments 2-4, more or less fuscous on 5; subapical on 2-3; sometimes the fasciæ are wholly or partly black; lp. 20:9; 12-14 mm. **belfragei**.
Scopa rather dense, black; abdomen black; lp. 18-7 **rosæ**.
3. Scopa fulvous; lp. 26:9; 14-16 mm. **dubitata**.
Scopa blackish or fuscous; 16 mm. **fuscipes**.

Males.

Hind spur hooked; segments 2-5 with whitish pubescent fasciæ; 6 with lateral spines; ventral segment 6 with two flat spines; joint 3 two or three times as long as 2; malar space small; clypeus yellow; 13-16 mm.

speciosa.*

Hind spur simple; segment 6 without lateral spines. 1.

1. Anterior inferior malar space large; vein IV₃ about one-half before apex of cell III₅; abdomen black; clypeus yellow; larger. 3.
Anterior inferior malar space small; vein IV₃ about one-fourth before apex of cell III₅; 11-14 mm. 2.

2. Clypeus white; mandibles rarely with basal dot; abdomen with whitish fasciæ. **belfragei**.
Clypeus yellow; mandibles usually with a basal dot; abdomen black, sometimes obscurely whitish fasciate. **rosæ**.

3. Joint 3 one-half as long as 4; 15 mm. **illinoensis**.
Joint 3 less than one-third as long as 4; 13-16 mm. **dubitata**.

MELISSODES Latreille.*Females.*

Scutel and disc of mesonotum without evident black or fuscous hairs. 11.

Scutel and disc of mesonotum with evident black or fuscous hairs. 1.

1. Wings hyaline, or nearly, sometimes purplish; cells III and III₄ usually subequal; smaller species. 6.
Wings more or less clouded or infuscated; cell III usually shorter than III₄; larger species. 2.

2. Segment 4 with an apical white pubescent patch on each side; scopa anteriorly whitish; elsewhere the pubescence is black; wings blackish; lp. 16:8; 12-16 mm. **bimaculata**.
Segment 4 with a continuous apical pale pubescent fascia; scopa, except on metatarsus posteriorly, pale ochraceous; mesonotum with a subquadrate black patch; wings yellowish. 3.

3. Abdomen with broad fasciæ of closely appressed white pubescence extending to margins on segments 2-4; 5-6 fuscous; pubescence pale ochraceous; vertex without black hairs; tegulæ testaceous; hind metatarsi fulvous posteriorly; middle of mandibles rufous; cells III and III₅ subequal; lp. 12:6; 13-15 mm. **illinoensis**.
Abdomen without broad apical fasciæ on segments 2-3. 4.

* In Trans. 22: 126, 1895, *S. speciosa* is written as a synonym of *S. frater*, but in January, 1903, on examining a cotype of *S. frater*, I found the hind spur was not hooked as in *S. speciosa*.

4. Fascia on segment 2 narrow, median, continuous; 3 with a basal fascia; fascia on 4 with a patch of black pubescence on the disc; vertex more or less black in front; disc of mesonotum nearly bare, sparsely punctured; hind metatarsi fulvous posteriorly; middle of mandibles rufous; tegulæ piceous, sometimes testaceous; lp. 16:8; 11-13 mm.; *sp. nov.*; 50 specimens. **variabilis.**
- Fascia on segment 2 obsolete, or nearly, oblique; vertex with black hairs. .5.
5. Pleura largely black; segment 2 impunctate; oblique lateral fascia on 3; and usually on 2; black patch on mesonotum separated from tegulæ; tegulæ testaceous; lp. 18:8; 15-17 mm. **obliqua.**
- Pleura ochraceous; segment 2 distinctly punctured; 3 with subapical, sometimes interrupted, fascia; fascia on 4 notched with black posteriorly; black patch on mesonotum reaching tegulæ; tegulæ black; lp. 16:8; 14-17 mm. **coloradensis.**
6. Black patch on mesonotum reaching tegulæ, or nearly; vertex strongly black ciliate; fascia on segment 4 usually with a patch of black hair apically, at least on the disc; front and middle legs with pubescence more blackish. 9.
- Black patch on mesonotum distinctly separated from tegulæ; vertex at most with some black hairs in front; fascia on segment 4 entire; front and middle legs with pubescence pale. 7.
7. Wings whitish, nervures pale; patch on mesonotum and scutel rather small and fuscous; lp. 11:6; 11-13 mm. **nivea.**
- Wings less whitish, nervures darker; patch on mesonotum and scutel more black. 8.
8. Tibial scopa pale ochraceous posteriorly; segment 1 with narrower whitish margin; lp. 14:7; 12-14 mm. **vernoniæ.**
- Tibial scopa more fulvous posteriorly; segment 1 with broader whitish margin; lp. 12:6; 12-13 mm. *sp. nov.*; 3 specimens. **coreopsis.**
9. Pubescence ochraceous, blackish on clypeus, labrum, vertex, mesonotum between tegulæ, scutel, usually the thorax and abdomen beneath; scopa, except metatarsi posteriorly, ochraceous; segments 2-4 with pale fasciæ; bordered with black on 4; sometimes entirely black, except the scopa and some pale hairs on face, cheeks, collar, pleura, meta-thorax, legs and base of abdomen; lp. 9:5; 11-12 mm. **simillima.**
- Pubescence cinereous; fascia on segment 4 rarely with a black apical border; lp. 12:6; 10-12 mm. 10.
10. Scopa whitish; hind metatarsi blacker posteriorly; pubescence of mesonotum short, thin, black, whitish on anterior median portion; segment 2 nearly impunctate, at least on the disc, broad apical margin bare; fascia on 2 thin, whitish, oblique, widely interrupted; fascia on 4 commonly with a bare notch posteriorly; scutel more convex and opaque; antennæ, tegula, tarsi and nervures darker; *sp. nov.*; 57 specimens
- **vernoniana.**
- Scopa more ochraceous; hind metatarsi less black posteriorly; pubescence of mesonotum longer, more dense, pale in front of an arcuate line between tegulæ; segment 2 distinctly punctured between the fasciæ, the disc pubescent, apical margin narrower and usually with appressed black hairs, fascia less oblique, less white, usually continuous; scutel more flat and shining; antennæ, tegulæ, tarsi and nervures more reddish; *sp. nov.*; 60 specimens. **boltoniæ.**

11. Fasciæ on base and middle of segment 2, on middle of 3. and apical margin of 414.
Fasciæ obsolete, or nearly; at least the front and middle legs and under parts black; head, thorax above and base of abdomen ochraceous.....12.
12. Scopa black; tegulæ testaceous; often oblique fasciæ on sides of segment 3 and sometimes apical patches on each side of 4, white; wings blackish; vein III₄ usually with a stump at the bend; lp. 18:8; 17-19 mm.
atripes.
Scopa ochraceous; wings more hyaline; tegulæ black.....13.
13. Pubescence above short, dense, pale, of occiput black; abdomen black; lp. 19:10; 13-14 mm.....**enici.**
Pubescence above long and more fulvous, of occiput the same; vertex in front more or less black; sides of segment 2 often, and of 3 sometimes, with narrow oblique fasciæ; lp. 12:6; 13-15 mm.; *sp. nov.*; 49 specimens
autumnalis.
14. Fascia on segment 4 not enclosing a diamond-shaped black patch; vertex without black hairs, except sometimes a few on the sides.....16.
Fascia on segment 4 enclosing a diamond-shaped black patch; tegulæ testaceous; pubescence of thorax above ochraceous, beneath black or fuscous; fascia on 2 narrow, hardly arcuate.... 15.
15. Hind metatarsi fulvous within; thorax beneath fuscous; vertex usually without black hairs; wings more hyaline; lp. 14:6; 10-13 mm.
petalostemonis.
Hind metatarsi black within; thorax beneath black; vertex usually with black hairs in front; wings somewhat clouded; lp. 14:7; 13-14 mm.
comptoides.
16. Pubescence pale, blackish on tarsi and labrum; wings nearly hyaline; tegulæ and nervures blackish; fasciæ rather broad and white, that on segment 4 entire; 15 mm.....**pallida.**
Pubescence fulvous.....17.
17. Fasciæ broad, nearly covering segments 2-4, that on 4 entire; nervures pale; hind tarsi posteriorly fulvous; tegulæ piceous; mp. usually 4; lp. 14:8; 11-12 mm.....**agilis.**
Fasciæ narrow, that on segment 4 notched or interrupted by black posteriorly; nervures darker; tegulæ testaceous; pubescence of legs, labrum, abdomen beneath and hind tarsi posteriorly usually darker; mp. usually 3; lp. 12:6; 11-13 mm.....**trinodis.**

Males.

- Segment 7 with lateral spines.....3.
Segment 7 without lateral spines; joint 3 nearly one-half as long as 4; clypeus, labrum and base of mandibles yellow; vertex without black hairs; tegulæ testaceous; at least the base of segment 2 with narrow fascia.1.
1. Pubescence of hind legs black; segment 3 with oblique white fasciæ on each side; wings clouded; mesonotum and scutel without black pubescence; 16-18 mm.**atripes.**
Pubescence of hind legs not black; segments 2-6 fasciate; wings not clouded; mesonotum and scutel usually with black or fuscous hairs.....2.

2. Fasciæ on segments 2-3 narrow, arcuate; pubescence fulvous or ochraceous; wings a little yellowish; tarsi black; 14-16 mm. **obliqua**.

Fasciæ on segments 2-3 broad, reaching apical margin; pubescence pale ochraceous; tibiæ at apex and tarsi inclining to testaceous; apical margin of segment 1 rather broadly pale testaceous; 11 mm.

illinoensis.

3. Length 8-11 mm.; joint 3 at shortest point not longer than 2; abdomen with fasciæ continuous, distinct; wings hyaline.....10.

Length 11-16 mm.; middle-sized or large species with joint 3 at shortest point longer than 2, or with the fasciæ usually interrupted, indistinct or wanting.....4.

4. Base of mandibles and labrum usually colored.....6.

Base of mandibles black; labrum black, rarely with a small spot; abdomen at least above with pubescence almost entirely black, except on bases of segments 1-2; tegulæ black.....5.

5. Pubescence of legs black, short; elsewhere black, except on face, cheeks beneath, vertex, thorax above, pleura and bases of segments 1-2, where it is cinereous or pale ochraceous; black, except clypeus, joints 4-13 beneath, bases of claws, sometimes the spurs and apical joints of tarsi; joint 3 twice as long as 2, 4 not much longer than 5; 12-13 mm.

cnici.

Pubescence long and fulvous, except on abdomen, where it is almost entirely black; spurs and apical joints of tarsi testaceous; joint 3 not longer than 2, 4 much longer than 5; labrum rarely with a yellow spot; narrow, oblique, dull fulvous or whitish fasciæ on sides of segment 2, sometimes also on 3, rarely continuous, rarely wanting; 11-14 mm.

autumnalis.

6. Pubescence usually black, except on face, tibiæ, tarsi and sides of segments 3-5; wings clouded; tegulæ black; mandibles sometimes entirely black; labrum yellow; joint 3 about twice as long as 2; 11-13 mm.

bimaculata.

Pubescence not black, except sometimes on vertex, mesonotum, scutel and abdomen 7.

7. Segment 2 distinctly punctured, a short apical fascia on each extreme side; continuous fasciæ on segments 4-6; pubescence fulvous, patches on mesonotum and scutel usually black; wings more or less fuliginous; tegulæ black; clypeus, labrum and base of mandibles yellow; joint 3 little longer than 2; 14-16 mm..... **coloradensis**.

Segment 2 obscurely punctured, with basal and median whitish fasciæ, continuous fasciæ on 3-4.....8.

8. Wings hyaline, nervures rather pale; pubescence and ornaments whitish; scutel sometimes with black hairs; labrum with a whitish stripe or sometimes entirely black; tegulæ black; broad apical margins of segments 1-5 pale testaceous; 5 with strong lateral spines; 12-14 mm.

vernoniæ.

Wings and nervures yellowish, more fuscous beyond middle; pubescence ochraceous; ornaments yellow.....9.

9. Segments 5-7 black; mesonotum, scutel and vertex without black pubescence; tegulæ testaceous; joint 3 little longer than 2; 12-14 mm.

comptoides.

- Segment 5 usually with white fascia, 6-7 black; scutellum and patch on mesonotum usually blackish; tegulae usually black, more or less testaceous posteriorly; apical margins of segments sometimes pale testaceous; tarsi and apex of tibia testaceous; joint 3 about twice as long as 2; 12-14 mm. **variabilis**.
10. Apical margins of segments broadly pale testaceous; wings clear; nervures pale; tegulae piceous; clypeus, labrum and base of mandibles marked with yellow; flagellum fulvous, a little darker above. 12.
Apical margins of segments black or dull testaceous; wings less clear; nervures usually dark; flagellum fulvous beneath, blackish above. 11.
11. Pubescence fulvous, not mixed with black on mesonotum or scutellum; mandibles black at base; middle of labrum yellow; clypeus yellow; mp. usually 3; tegulae testaceous. **trinodis**.
Pubescence cinereous, mixed with black on scutellum and mesonotum; mp. usually 4; tegulae piceous; clypeus white; labrum with white stripe; nervures dark. **vernoniana**.
12. Pubescence pale ochraceous to fulvous; labrum yellow. **agilis**.
Pubescence white; middle of labrum yellow. **nivea**.

EMPHORIDÆ.

Females.

- Cell III nearly equals $III_4 + III_5$; vein IV_3 near middle of cell III_5 ; no pulvilli; head, thorax and sides of segment 1 with pale ochraceous pubescence; mp. 3 ciliate; paraglossæ setiform, a little longer than lp. 1; lp. 22:18; 13-17 mm.; *Emphor bombiformis* in **Emphorinae**.
- Cell III about equals III_4 ; III_5 short, vein IV_3 near its end; pulvilli present; pubescence pale and mixed with black on head and thorax above; segments 2-4 with white pubescent fasciæ; elsewhere the pubescence black; mp. 3-4 ciliate, 6 minute; paraglossæ shorter than lp. 7; lp. 18:51; 11-14 mm.: *Entechnia taurea* in. **Entechniinae**.

Males.

- Pulvilli absent; abdomen not fasciate; 14-17 mm.; *Emphor bombiformis* in **Emphorinae**.
- Pulvilli present; segments 2-6 with white pubescent fasciæ; 9-13 mm.; *Entechnia taurea* in. **Entechniinae**.

ANTHOPHORIDÆ.

Females.

- Apex of cell $III_1 + 2$ on costa; cell III_4 narrower above; vein IV_3 a little before III_5 ; a before V_2 ; mandibles with an internal tooth; joint 3 longer than 4-5; pubescence above on thorax and base of abdomen ochraceous, elsewhere black; tibial scopa copious; mp. 2 twice as long as 1; lp. 28:8; 15 mm.; *floridana* in. **Emphoropsis**.
- Apex of cell $III_1 + 2$ more remote from costa, appendiculate; cell III_4 not narrowed above; vein IV_3 near middle of cell III_5 ; a about opposite V_2 ; scopa rather scanty. 1.

1. Hind knee-plate lanceolate; mandibles tridentate; cell III₅ broader above; joint 3 nearly equals 4-7; pubescence griseous and black, fulvous on segments 5-6; mp. 2 four or five times as long as 1; lp. 32:6; 11-13 mm.; *terminalis* in..... **Clisodon.**
Hind knee-plate circular; mandibles bidentate.....2.
2. Cell III₄ broader above; joint 3 nearly as long as 4-6; thorax and base of abdomen, more or less, ochraceous, elsewhere black; mp. 2 twice as long as 1; lp. 28:8; 12-15 mm.; *abrupta* in *gen. nov.*; type *Anthophora abrupta* Say..... **Anthemo ssa.**
Cell III₄ not broader above; mp. 2 about thrice as long as 1.....3.
3. Joint 3 as long as 4-6; segments 1-4 with white fasciæ; pubescence ochraceous, except on legs posteriorly; lp. 36:5; 15-16 mm.; *walshii* in **Amegilla.**
Joint 3 longer than 4-7; black, ochraceous above on thorax and segment 1; lp. 46:8; 15-17 mm.; *ursinus* in..... **Podalirius.**

Males.

- Middle claw joints simple; clypeus entirely whitish or yellow2.
Middle claw joints ciliate; face marks whitish; clypeus partly black; labrum and scape in front whitish; pygidial process rather distinct, the area indistinct.....1.
1. Joint 3 longer than 4-6; mandibles and abdomen black; pubescence of head, thorax and segment 1 long and griseous or ochraceous, mixed with black on vertex and mesonotum; middle tarsi fimbriate; 15-16 mm.; *ursinus* in **Podalirius.**
Joint 3 hardly longer than 4-5; spot on mandibles and apical margins of segments 1-6 white; 14-15 mm.; *walshii* in..... **Amegilla.**
 2. Hind metatarsus with a great tooth; apex of labrum concave, black tufted; joint 3 about as long as 4-5; scape in front, labrum and spot on mandible yellow; segment 7 without pygidial area or process, apex concave, bidentate; pubescence of head, thorax, front legs and base of abdomen mostly ochraceous, elsewhere mostly black; 12-14 mm.; *abrupta* in **Anthemoëssa.**
Hind metatarsus simple; labrum entire.....3.
 3. Joint 3 longer than 4-5; segment 7 furcate; labrum yellow; mandibles and scape usually black; pubescence griseous, mixed with black above; 10-11 mm.; *terminalis* in **Clisodon.**
Joint 3 little longer than 4; pygidial area shining; labrum, mandibles and scape black; ochraceous above on thorax and segment 1; *floridana* in **Emphoropsis.**